

Docket No. 200047.00005
Serial No. 09/656,742

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for forming a liquid crystal alignment layer comprising:
 - a. ~~disposing liquid crystals in a solvent;~~
 - ~~b. depositing the liquid crystals and solvent on a substrate;~~
 - ~~c. removing the solvent to form~~ forming a liquid crystal film on a the substrate, the liquid crystal film consisting of liquid crystals and having a thickness; and
 - bd. irradiating the liquid crystal film with light wherein the wavelength of the light at least partially overlaps the absorption spectrum of the liquid crystals to form an alignment layer of liquid crystals, and wherein the light is elliptically polarized or partially polarized.
2. (Currently Amended) The method of claim 1, wherein the liquid crystal film is formed by depositing is one of spin coating and dip coating.
3. (Canceled)
4. (Currently Amended) The method of claim 1, wherein the liquid crystal film has a thickness ranging from about 2nm to about 0.1 [um] micrometer.
5. (Original) The method of claim 1, wherein the liquid crystal film has a thickness ranging from about 2nm to about 20 nm.
6. (Original) The method of claim 1 further comprising laying a patterned mask over the liquid crystal film prior to the irradiating step and removing the mask after the irradiating step.

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7. (Original) The method of claim 1, wherein the liquid crystal is selected from the group consisting of 4-cyano-4'-alkylbiphenyls, 4-cyano-4'-alkyloxybiphenyls, 4-alkyl-4'-alkoxy-azoxybenzenes and mixtures thereof.

8. (Original) The method of claim 1, wherein the liquid crystal film has an easy axis of orientation and an anchoring energy, wherein at least one of the easy axis of orientation and anchoring energy is locally varied across the liquid crystal film by at least one of exposure time of the light at a point on the liquid crystal film and polarization of the light at a point on the liquid crystal film.

9. (Original) The method of claim 8, wherein the direction of the easy axis can be locally varied across the alignment layer from 0° to 360°.

10. (Original) The method of claim 8, wherein the anchoring energy ranges from about 10^{-4} to about 10^{-2} erg/cm².

11. (Currently Amended) A method of forming a liquid crystal cell comprising:
providing two opposed substrates each having covered with an electrode;
forming a disposing first liquid crystals film in a solvent;
~~deposited the first liquid crystals and solvent on~~ at least one of the ~~electrode covered~~
substrates on the surface facing the other substrate, the liquid crystal film consisting of selected
liquid crystals and having a predetermined thickness;
~~removing the solvent to form a liquid crystal film;~~
irradiating the liquid crystal film with light wherein the wavelength of the light at least
partially overlaps the absorption spectrum of the liquid crystals, ~~and wherein the light is ellipti-~~
~~cally polarized or partially polarized;~~
placing spacers between the substrates;
sealing three of the sides of the substrate to form a cell;
filling the cell with a second liquid crystal; and
sealing the cell.

12. (Original) The method of claim 11, wherein the liquid crystal film is formed by depositing is one of spin coating and dip coating.

13. (Canceled)

14. (Currently Amended) The method of claim 11, wherein the liquid crystal film has a thickness ranging from about 2nm to about 0.1 [um] micrometer.

15. (~~Currently Amended~~) The method of claim 11, wherein the liquid crystal film is formed by disposing liquid crystals in a solvent, depositing the combination on the substrate and removing the solvent~~has a thickness ranging from about 2nm to about 20nm.~~

16. (Original) The method of claim 11 further comprising laying a patterned mask over the liquid crystal film prior to the irradiating step and removing the mask after the irradiating step.

17. (Canceled)

18. (Original) The method of claim 11, wherein the first liquid crystal has an easy axis of orientation and an anchoring energy, wherein at least one of the easy axis of orientation and anchoring energy is locally varied across the liquid crystal film by at least one of exposure time of the light at a point on the liquid crystal film and polarization of the light at a point on the liquid crystal film.

19. (Original) The method of claim 11, wherein the first liquid crystal is selected from the group consisting of 4-cyano-4'-alkylbiphenyls, 4-cyano-4'-alkyloxybiphenyls, 4-alkyl-4'alkoxy-azoxybenzenes, and mixtures thereof.

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20. (Currently Amended) The method of claim 18, wherein the ~~direction of the easy axis can be locally varied across the alignment from 0° to 360°~~ first and second liquid crystals have the same molecular structure.

21. (Currently Amended) The method of claim 18, wherein the ~~anchoring energy ranges from about 10^{-4} to about 10^{-2} erg/cm²~~ liquid crystal film is formed from a liquid medium coated on the substrate to a predetermined thickness.

22. (Currently Amended) The method of claim 11, wherein ~~an~~ further alignment layer is disposed on one of the substrates.

23. (Currently Amended) The method of claim 22, wherein the further alignment layer is selected from the group consisting of rubbed polyimides, light-irradiated polyimides, rubbed polyvinyl-aliquid crystalolohol, light-irradiated polyvinyl-cinnamate, light-irradiated polysiloxane-cinnamates, and oblique evaporated Al₂O₃.

24. (Currently Amended) A liquid crystal display comprising a first and second cell wall structure, electrodes disposed on facing sides of said first and second cell wall structures, an alignment layer disposed on at least one of said electrodes, and first liquid crystals disposed within a space between the first and second cell wall structures, wherein the alignment layer ~~consists essentially of~~ comprises a liquid crystal film comprising second liquid crystals, wherein the liquid crystal film has been irradiated with light that at least partially overlaps the absorption spectrum of the second liquid crystals, ~~and wherein the light is elliptically polarized or partially polarized.~~

25. (Previously Presented) The method of claim 1, wherein said method comprises a step in a method of forming a liquid crystal cell.

26. (Currently Amended) The method of claim 25, comprising:

providing two opposed substrates each [covered with] having an electrode;

disposing first liquid crystals in a solvent;

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depositing the first liquid crystals and solvent on at least one of the [electrode covered] substrates on the surface facing the other substrate;

removing the solvent to form a liquid crystal film [acting as an alignment layer];

irradiating the liquid crystal film with light wherein the wavelength of the light that at least partially overlaps the absorption spectrum of the liquid crystal;

placing spacers between the substrates;

sealing three of the sides of the substrate to form a cell;

filling the cell with a second liquid crystals; and

sealing the cell.

27. (Previously Presented) A liquid crystal cell made according to the method of claim 11.